

## The Walt Powell Papers, 1941-1981

1 cu.ft.

JPL 64

### BIOGRAPHY

Walter B. Powell was born in 1917 and died May 10, 1994. He was survived by Marilyn Huddy Powell 1815 Rim Road, Pasadena, California, 818-792-2223. and two children, Joan and David. He had met his wife in the early 1940's while they were both employed for GALCIT Project # 1.

Powell did graduate work in Aerodynamics at California Institute of Technology and worked for Douglas Aircraft before he was hired by Frank Malina in September 15, 1941 to work for the Air Corps Jet Propulsion Research Project/GALCIT Project # 1. He was one of fourteen Project employees at the time. Malina assigned him to work on developing a gasoline-oxygen JATO motor for a Douglas A-20a aircraft. He assisted in the A-20a JATO tests in April 1942, in part as flight engineer, replacing Bob Terbeck.

Powell as a witness watched Martin Summerfield pour--for the first time--aniline into nitric acid in February 1942, causing a hypergolic reaction.

At one time Powell defended deer hunting on the Project's Arroyo Seco site; other Project employees criticized him for his stand.

Powell's title in May 1943 at the Project was research engineer. He was present at the first unsuccessful test of the Hydrobomb carriage rockets. He worked on the Corporal motor, its tanks and controls three-quarters time in the Fall of 1944.<sup>1</sup> In early 1945 he set up the WAC Corporal and the Corporal motors test pit at JPL's Muroc Test Site in Antelope Valley, CA. He soon became Test Chief at the site. He later set up a liquid hydrogen-oxygen rocket motor test facility at the site and remained in charge there until mid-1946. He visited White Sands Proving Grounds for tests of the WAC Corporal in September 1945.

He continued employment at JPL during the 1940's and 1950's, working on Corporal and later Sergeant missile development. He continued studying the application of propulsion techniques to various projects.

Several anecdotes exist concerning Powell, his personality and work style, for example:

For the Viking Project in the 1960's, JPL needed some no-longer-produced diodes originally manufactured by the General Electric Corporation. Powell contacted GE but was told by a GE representative that the company wouldn't make any more of that particular diode "unless the president told me to do it." Powell thought the GE representative meant the President of the United States although the representative was referring merely to the president of GE. However, Powell called the White House to explain JPL's problem; the White House called the Pentagon; the Pentagon called the president of GE; the president of GE called the GE representative with whom Powell had spoken. And the diodes were once again manufactured.<sup>2</sup>

In 1971 Powell was a part of the Liquid Propulsion Combustion Device Development Group at JPL, working on space-storable rocket engines.<sup>3</sup>

Powell retired in 1973 from JPL. Oral history interviews were conducted with him by John Sloop and Cargill Hall in 1973 and by James Wilson in 1974. The interviews are a part of the JPL Archives Oral History Collection.

Powell wrote 24 papers between 1942 and 1948. A partial list of these and his other publications

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<sup>1</sup>ORDCIT Conference Minutes, September 5, 1944, p. 2, copy @ JPL Archives History Collection 3-49.

<sup>2</sup>Anecdote recounted about Powell by a participant in the JPL New Leadership Training class, November 17, 1994.

<sup>3</sup>Lab-oratory, December 1971, p. 20.

follows.

*Development of a Liquid Propellant Jet Unit and Its Operation on an A20A Airplane*, (with Summerfield and Crofut) JPL Report 1-13, September 14, 1942.

*Design and Test Results on an Uncooled 1000 lb. Thrust Liquid Propellant Jet Motor*, JPL Report 1-17, July 20, 1943.

*Tests of 2000 lb and 6000 lb Thrust Uncooled Liquid Propellant Jet Motors*, JPL Report 1-21, January 27, 1944.

*Installation and Operation of the Rocket Unit for Propulsion of the Hydrodynamic Tank Towing Carriage at the ACJP Project*, JPL Report 2-2, August 15, 1944.

*Performance Characteristics of Spontaneous Liquid Propellants with Mixed Gasoline as One Component*, JPL Report 1-27, December 13, 1944.

*Development and Application of a Rotary Throttle Valve for Liquid Propellant Rocket Motors*, JPL Report 1-28, September 24, 1945.

*Description of Facilities for Testing Large Scale Liquid Propellant Rocket Motors at the ORDCIT Test Station, Muroc*, JPL Report 4-25, February 26, 1946.

*Heat Transfer to Fluids in the Region of the Critical Temperature*, Progress Report 20-285, April 1, 1956 (copy with the Papers).

*A Method for the Determination of Local Heat Flux from Transient Temperature Measurement*, (with Theodore W. Price) JPL Technical Report 32-578, July 15, 1964 (copy with the Papers).

"Synthesis and Application of the ICRPG Liquid-Propellant Rocket-Motor Performance Evaluation Method" for the ICRPG 10 Liquid Propulsion Symposium, November 19-21, 1968 at Las Vegas (with J.L. Pieper of Aerojet) (copy with the Papers ).

*Simplified Procedures for Correlation of Experimentally Measured and Predicted Thrust Chamber Performance*, JPL Technical Memorandum 33-548, April 1, 1973 (copy with the Papers).

## PROVENANCE

Mrs. Marilyn Huddy Powell donated the collection with no conditions to the JPL Archives through Jan van Amerefoort (805-394-7057) who delivered the collection to the Archives during September 1995.

## SEPARATION STATEMENT

Copies of duplicate materials considered widely distributed and known to be available in other existing Archives collections were removed during processing with no notice of separation. Some items known to be available in other Archives collections were retained in the collection if they were written by Powell or related closely to his career.

## CONSERVATION/PRESERVATION

All original newspaper clippings were photocopied and the originals discarded.

## COLLECTION DESCRIPTION

The Papers are organized in the following sequence of generic material types:

Materials Authored by Walt Powell  
Primary sources, JPL-related  
Articles by personal authors other than Powell  
Materials created by institutions  
Pamphlets  
Magazine and Newspaper Clippings  
Photographs

The Papers consist of about a cubic foot of both primary and secondary materials authored and collected by Powell which he--or his wife--considered of historical importance. As received by the Archives, the existing arrangement indicated prior selection of materials.

The Papers include several significant documents, including the only extant paper copies of JPL Conference Minutes for JPL-1, April 29, 1944 through December 30, 1944<sup>4</sup> and December 30, 1944 through November 5, 1945.<sup>5</sup> It also contains a revealing set of materials about an incident at the 1942 A20a tests involving, Powell, Frank Malina, and an ax. Also included is a Malina wartime security memo authorizing the Project's switchboard operator to eavesdrop on all telephone calls.

A unique pamphlet in the Papers was apparently created for a 1961 visit by Malina to JPL. The pamphlet identifies all the JPL personnel that appear in JPL Negative M-21, a 1943 photo of Project employees standing near large oak tree onlab. Also in the collection are photographs of significant historical value of the 1936 Arroyo Seco rocket motor tests and versions of Frank Malina's memoirs which Malina sent to Powell for the latter's review before publication.

Other items include published materials (commercial, JPL and NASA-related) not otherwise easily located. This is particularly true of publications concerning Frank Malina's career as an artist after 1946, after he left JPL.

A final component of the Papers are 136 photographs which Powell retained for their historical significance. They are mainly from JPL negatives. However, the Papers include a small set of singular snapshots taken by Powell in May 1946 of V-2 testing at White Sands Proving Grounds.

## CONTAINER LIST

### Materials Authored by Walt Powell:

#### Fld 1:

Powell, W. B. "Notes on Hydrogen-Oxygen Developments [at JPL]," August 3, 1975, 2 pp. typescript (photocopy; with note from Cargill Hall).

[Powell initials on p. 3], "Principle of Rocket Propulsion," n.d., 3 pp, draft typescript.

#### Fld 2:

Packet of 4 items (two 3x5 cards, yellow paper, and a JPL photo, a 4x5 b&w print of Negative 383-1050 of a smokey Corporal motor test at the Muroc test stand). These may be materials Powell used during one of his oral history interviews in the 1970's.

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<sup>4</sup>Bound volume of dittoed copies; microfilm copy of this document is @ Microfilm Roll 751-458 Item 1, "Re-order 69-3".

<sup>5</sup>Bound volume of dittoed copies; microfilm copy of this document @ Microfilm Roll 751-458 Item 2, "Re-order 69-4".

Fld 3:

In an untitled envelope:

A list with no title and no date of people's names, many of them associated with JPL. This may be a list of people to invite to an anniversary party for Powell (photocopy of ms document).

"C. Foster Milestones," n.d., 3 pp, ms. Concerns Charles Foster's work experiences at JPL in 1944 and 1945, with two cards of notes presumably about Foster-related photographs. Possibly used by Powell at a Foster anniversary party.

Fld 4:

in an untitled envelope:

C.R. Byers to Powell, May 15, 1970 (letter), with 3 prints (8x10, b&w) of JPL Negatives (Twenty-fifth anniversary celebration of founding of JPL Edwards Facility, which Powell attended).

Fld 5:

Dunn, Louis, Powell, Walt and Seifert, Howard, "Heat Transfer Studies Relating to Rocket Power Plant Development," in *Proceedings of Third Anglo-American Conference*, 1951, pp. 271-328 (reprint, with copy of Corrections to Paper and text of conference Discussion, pp. 328a to 328j).

Powell, Walter, *Heat Transfer to Fluids in the Region of the Critical Temperature*, JPL Progress Report 20-285 April 1, 1956. An article of the same title was published in *Jet Propulsion* (of the American Rocket Society), 27 (July, 1957), 776-783 (copy with the Papers).

Powell, Walter B. and Price, Theodore W., *A Method for the Determination of Local Heat Flux from Transient Temperature Measurement*, JPL Technical Report 32-578, July 15, 1964.

Powell, Walter B. and Pieper, J.L., "Synthesis and Application of the ICRPG Liquid-Propellant Rocket-Motor Performance Evaluation Method," presented at ICRPG 10th Liquid Propulsion Symposium, Las Vegas, November 19-21, 1968, 19 pp.

Powell, Walter, *Simplified Procedures for Correlation of Experimentally Measured and Predicted Thrust Chamber Performance*, JPL Technical Memorandum 33-548. April 1, 1973.

Primary sources, JPL-related:

Fld 6:

Blueprint: "GALCIT No. 1 Plot Plan," September 8, 1942, GALCIT print number 5256-B-8 (oversize; with pencil emendations).

Memorandum: Frank Malina to "All Engineers & Research Assistants," January 11, 1943 (on CIT memo form; typed, carbon copy, hand signed): the Project switchboard operator is instructed to listen in on any telephone calls passing through the Project switchboard.

"The ORDCIT Test Station Muroc Army Air Base," ca. 1946, 1 page (description of the JPL Muroc Test Station and its facilities; dittoed).

Howard Seifert to Cargill Hall, April 1, 1969 (letter; photocopy) with attached note, Carg to Walt, April 4, 1969: "No luck on first return from Seifert. As yet no response from Summerfield. Will keep you posted."

Fld 7:

JPL Conference Minutes for JPL-1, April 29, 1944 through December 30, 1944. (ring-bound volume of dittoed copies. Microfilm copy of this document @ Microfilm Roll 751-458 Item 1, "Re-order 69-3"). Cover marked "Office No. 7 RBC WBP," possibly Powell and Richard B. Canright. Declassified from CONFIDENTIAL.

Fld 8:

JPL Conference Minutes for JPL-1, December 30, 1944 through November 5, 1945 (ring-bound volume of dittoed copies; microfilm copy of this document @ Microfilm Roll 751-458 Item 2, "Re-order 69-4"). Declassified from CONFIDENTIAL.

Fld 9:

Booklet: print of JPL Negative M-21 [1943 photo of all Air Corps Jet Propulsion Project employees standing near large oak tree onlab] with an overlay identification outline and associated name list; comb-bound; 3 pp + covers.

Booklet: print of JPL Negative M-2941 [1961 reunion of some of the people in the 1943 M-21 photo with Frank Malina] with overlay identification outline and associated name list; comb-bound, 3 pp + covers.

Fld 10:

Employee/Retiree Form Letters:

W.H. Pickering and Jack James to "All JPL Employees," October 15, 1962 (form letter) concerning the Mariner 2 Mission.

Gordon O. Boles ("Supervisor, Retirement") to "Retiree," December 16, 1977 announcing a 20th Anniversary party for Explorer I launch (form letter; copy).

Richard James to [JPL] Retirees, Feb 26, 1979 (form letter; copy).

Fld 11:

Frank Malina to Walt Powell, December 21, 1968 (letter with envelope), with 3 color photos enclosed of October 31, 1968 commemorative plaque installation ceremonies.

Majorie Malina to Walt Powell, January 20, 1969 (letter with envelope), with 1 color photo enclosed from October 31, 1968 commemorative plaque installation ceremonies.

Undated unnamed single tear-page ("p. 3") of a JPL publication: includes an article about the October 31, 1968 plaque ceremony.

JPL *Universe*, November 20, 1981: includes Frank Malina obituary.

Fld 12:

Package related to Frank Malina's Memoir Concerning 1939-46:

Malina, Frank, "The U.S. Army Air Corps Jet Propulsion Research Project, GALCIT Project No. 1, 1939-1946: A Memoir," 47 + 7 pp (photocopy of typescript; with emendations and corrections by Cargill Hall and Walt Powell).

Cargill Hall to W.B. Powell, memo, August 4, 1970.

Powell, W.B., "Comments on Malina Memoirs," August 6, 1970, 4 pp, handwritten.

Frank Malina to Walter [Powell], August 16, 1970 (letter).

Hall forwarded a copy of the Malina Memoirs (which Hall had marked) to Powell for his comments; Powell marked the Memoirs; the marked Memoirs along with Powell's "Comments" were sent to Malina; Malina wrote Powell a letter of thanks for the comments.

Articles by personal authors other than Powell:

Fld 13:

Carroll, P. Thomas, "Historical Origins of the Sergeant Missile Powerplant," August, 1972, "JPL/HR-3," 55 pp. typescript (photocopy).

Clausen, Chris, "How to Talk to the Press, n.d., 2 pp. typescript of a JPL press release from 1960s.

DuBridge, L.A., "The Challenge of the Space Age," *Engineering and Science*, 21 (April, 1958), 4 pp. (reprint).

Edson, Lee and Oppenheim, A.K. "von Karmaniana," *Astronautics*, June 1958, pp. 42-43, 72-73.

Hall, Cargill, "Earth Satellites: A First Look by the United States Navy in the 1940's," June 1970, 41 pp typescript. A 43 pp later version of this study is at JPL Archives History Collection 5-868.

Hall, Cargill, "Lunar Impact: A History of Project Ranger: A Status Report," September 13, 1974, 5 pp, typescript (photocopy).

[Hall, Cargill], "The Origins of the Jet Propulsion Laboratory, 1936-1946" [about 1975-76], 16 pp typescript (sketch of early JPL history; photocopy).

Hall, Cargill, "A Selective Chronology: GALCIT-JPL Development, 1926-1950," September 8, 1967, 54 pp typescript (photocopy).

#### Fld 14:

Ley, Willy, "[Test?] Stands," *Air Trails and Science Frontiers*, February 1947, pp. 54-56, 98 (Papers includes only pp. 55 and 56; photocopy. Two hydrobomb and one Corporal motor test photographs are reproduced in the article).

Mackinnon, Heather, "The 50's -- Rocketry Comes of Age," *Missiles and Rockets*, January 4, 1960, 13 pp. typescript of text of published article (dittoed). Includes an Eugene Emme-type date/event list of missile and missile-related achievements.

Malina, Frank. "Characteristics of the Rocket Motor Unit Based on the Theory of Perfect Gases," *Journal of the Franklin Institute*, 230 (October 1940), 433-454 (reprint; penciled formulas in margins)

Malina, Frank J., "Is the Sky the Limit? Ordnance Rockets Demolish the Barriers of Space," *Army Ordnance*, July-August, 1946, pp. 45-48 (photocopy).

Malina, Frank, "The Jet Propulsion Laboratory: Its Origins and First Decade of Work," *Spaceflight*, 6 (1964), 160-165 and 193-197 (reprint; with photocopies of separate sections as published). This article was later to be published as a section of Eugene Emme, ed., *The History of Rocket Technology* (Detroit: Wayne State University Press).

Malina, Frank, "Memoir: The U.S. Army Air Corps Jet Propulsion Research Project, GALCIT Project No. 1, 1939-1946," 32 pp typescript (photocopy) of paper presented by Malina in 1969. Another copy is located at JPL Archives History Collection 3-411.

Malina, Frank, "The Rocket Pioneers: Memoirs of the Infant Days of Rocketry at Caltech," *Engineering and Science*, 29 (February 1968), 9-13, 30-32 (reprint). Pickering, William H. "The Exploration of Space," April 11, 1959, 10 pp. (typescript of a speech).

Pickering, William A., "Man in Space," April 29, 1958, 3 pp (printed text of a speech).

Pickering, William H., "Space: The New Scientific Frontier." September 29, 1959, 12 pp (typescript of a speech).

Silverstein, Ab, "Toward a National Space Program," [April, 1959], 12 pp. (typescript of a Caltech press release).

Seifert, Howard, "The Jet Propulsion Laboratory," *Engineering and Science*, 25 (October, 1952), 11-18 (photocopy).

Seifert, Howard S., Mills, Mark M., and Summerfield, Martin, "The Physics of Rockets," *American Journal of Physics*, 15 (January-February; March-April; May-June, 1947), 1-21, 121-140, and 255-272 (reprint). Another copy is located at JPL Archives History Collection 3-187.

[Stanton, Roger], "Research and Development at the Jet Propulsion Laboratory, GALCIT," *Engineering and Science*, 9 [July 1946] (reprint with no pagination; photocopy).

#### Fld 15:

Package of Articles by Frank Malina labeled "Malina Papers":

International Academy of Astronautics Annual Report, 1964-65, reprint from *Astronautica Acta*, 11 (1965), 363-371.

Frank Malina, "Some Reflections on the Differences between Science and Art" in *Data: Directions in Art/Theory/Aesthetics*, Anthony Hill, ed. (London: Faber & Faber, 1968), 134-149 (page proofs).

Frank L. Malina, "Kinetic Painting: The Lumidyne System," *Leonardo*, 1 (1968), 25-33 (reprint).

Frank J. Malina, "The LIL Project of the International Academy of Astronautics," *Journal of the British Interplanetary Society*, 21 (1968), 198208 (reprint).

Frank Malina, "Differences entre la science and [l]art: Quelques reflexions," *Leonardo*, 1 (1968), 449-455, a French translation of Frank Malina, "Some Reflections on the Differences between Science and Art" in *Data: Directions in Art/Theory/Aesthetics*, Anthony Hill, ed. (London: Faber & Faber, 1968), 134-149.

Frank J. Malina, "On the Visual Fine Arts in the Space Age," *Leonardo*, 3 (1969) 323-325 (reprint).

#### Materials created by institutions:

##### Fld 16:

President's Science Advisory Committee, *The Space Age*, New York: Good Reading Rack Service, 1958 (pamphlet).

"United States and Russian Satellites . . . , 1957-58-59," September 1959; 21 pp (charts; 2 consecutive sets, possible created by NASA or by JPL).

Convair Division of General Dynamics Corporation, *Space Primer*. San Diego: Convair, 1959. (booklet).

[No title], n.d., 6 pp. (typescript of as JPL press release concerning the Explorer I).

"Explorer I," n.d.; 4 pp. (printed leaflet). Includes cutaway drawing of the interior layout of the satellite's components.

[No title], n.d., 15 pp. (typescript of a JPL press release concerning the trajectories of spacecraft around the Moon).

1 pp. from an unidentified Thiokol Corporation publication; concerns the Thiokol LR-11 rocket engine.

*Aviation Week*, June 22, 1959, whole: "NASA Special Issue" (reprint).

JPL. "Guided Missile Technology for Tomorrow," [after August 1954; before November 1955], 12 pp. (pamphlet promoting JPL to prospective employees).

JPL. "Organized Research in Jet Propulsion," [after 1951; before August 1953], 32 pp. (pamphlet promoting JPL).

##### Fld 17:

Kennedy Space Center Visitor Packet, 1967 (3 posters, 1 booklet, 2 pamphlets; in folio).

JPL Public Information Office, *News Clips*, January 31, 1963: includes reprints of February 1, 1958 articles about Explorer I.

*Engineering and Science*, July 1946. "WAC Corporal issue."

Pamphlet: JPL. "68 Hours to the Moon," n.d.; 20 pp. Concerns Ranger 7.

##### Fld 18:

In an envelope titled: "Mars"

Kenneth F. Weaver, "Journey to Mars [Mariner 9]," *National Geographic*, February 1973 (reprint; pages not shown).

Mariner Mars 69 Team Presentation Folio (includes Bud Schurmeier letter, December 15, 1969; JPL pamphlet titled "Pictures and Results 1969"; and a package of 10 JPL lithographic prints [all P69-522] of

Mariner 6 and 7 images of Mars [all in printed folio case] + second set).  
3 JPL lithographic prints of Viking 1 lander on Mars surface.

Fld 19:

Mariner 4 presentation package (includes Dan Schneiderman letter, August 13, 1965 and 8 lithographic prints from JPL Office of Public Education and Information).

Fld 20:

In an untitled folder:

JPL Open House May 31-June 1, 1980 materials: 4 items: map of lab, fact sheets, history sheet, and 2 handouts (Pumping Coal; Electricity from Solar Cells).

Fld 21:

Mariner 10 [to Mercury] JPL lithographic print set (9 sheets; P74-33, March 1974).

Pamphlets:

None of these are presumed to be a part of other Archives collections.

Fld 22:

JPL. *The Mariner Mission--1962*, 31 pp. [no publication number].

Fld 23:

Ames Research Center. *Pioneer [10 and 11] Saturn Encounter*, September 1979.

Fld 24:

JPL. *The Moon Probe Pioneer IV [1959]*, n.d., no pagination [no publication number].

Fld 25:

JPL Office of Public Education Services. *Surveyor Soft-landing Lunar Spacecraft*, n.d. 7-panel folded information sheet.

JPL Public Educational Services Office, *The Now Frontier: Linking Earth and Planets*, January and August 1974. A 5-item series of pamphlets (P-73-219 for Issues 1 through 4; P74-106 for Issue 5).

Fld 26:

JPL. *Ranger 1964 [Block III]*. n.d. 34 pp [no publication number].

JPL. *Ranger 1964-65 [Block III]*, July 1964 34 pp [no publication number; modified version of above].

Fld 27:

JPL. *JPL Today*, August 1970 (P-70-249).

Fld 28:

JPL. *Space Explorers*. July 1958.

Fld 29:

JPL Mariner Mars 1971 Project Office. *Mars--Our New Frontier: Mariner 9 Results*, February 1973. 12-panel folded information sheet with shaded relief map of Mars on back.



## Magazine and Newspaper Clippings:

### Fld 30:

Bangs, Scholar, "Altitudes of More Than 43.5 Miles Reached in Army Rocket Tests," *Aviation News*, March 18, 1946, p. 9 (photocopy).

"Caltech's New Rocket Revealed," *Pasadena Star-News*, May 10, 1946, p. 1 (photocopy).

"Atomic Age Turning Cultured Old Pasadena Into U.S. Jet capital," *Pasadena Independent*, June 23, 1946, pp 3, 22 (photocopy).

"Ercoupe First Tested JATO," *Aviation News*, June 18, 1945, p. 35 (photocopy). "New Rocket Fields Being Explored," *Pasadena Star-News*, June 23, 1946. p. 21 (photocopy).

Toth, Robert C., "Former JPL Director Now Famous as Artist," [*Los Angeles?*] *Times*], September, 1964, the week following the International Astronautical Congress in Warsaw (photocopy).

Getze, George, "Ex-Caltech Scientist [Hsue-shen Tsien] Not China's 'A-Brain,'" *Los Angeles Times*, October 25, 1964, D-16 (photocopy)

West, Richard, "U.S. Marks 25th year of Rocketry: Glue, Cornstarch Propelled First Jets," [*Los Angeles?*] *Times*, August [date not shown in copy], 1966 (photocopy).

## Photographs:

### Fld 31:

7 prints (4x5; b&w) labeled:

"M-1A," [six men hoisting WAC into stand at Edwards Test Station, 1945]

"M-1C," [an older man and a shirt-less younger man looking at WAC in place on the stand]

"M-3" [cement barricade at left, WAC in stand on right panorama]

"M-12" [diagonal street shot, test stand to left with WAC in place, power poles, trucks]

These are prints of JPL Negatives 383-828 (2 images), 383-1035, and 383-1223B.

### Fld 32:

26 prints (17 [b&w 2x2] prints with 17 negatives in an envelope labeled "White Sands Trip;" 7 [b&w 4x5] prints; 2 [b&w 8x10] prints). Includes one image of a test stand at JPL; the remaining 16 images are photos of V-2 testing at White Sands Missile Range, probably May 1946. Presumably these were taken by Powell.

### Fld 33:

35 prints (8x10; b&w and color), 1941 to 1970s, from JPL negatives; various subjects; collected by or related to Powell: JB-1, 1941 hillside view of project; JB-23, 27AB&C, flooded Arroyo; JB38, Project from hillside; JB-41, 42, 43, 46, buildings; JB-637 & 638 buildings; M-25, November 1943 hillside fire; JB-727B, snowfall on lab; unnumbered, aerial view of lab (ca. 1955, with diagonal road to northeast from west entrance, long parking lot going to east from west entrance); four Powell award pictures (15 Year onward); P-1003, WAC Corporal going to the Smithsonian; M-2941, 1961 Malina visit to Lab; P1981B, 1962 Powell award; P-858, Powell award; 293-2382A, Sergeant in its transport; 314-3172, Sergeant launch; 311-3917A, Goldstone antenna; P-1412, Goldstone antenna; EX-280, Explorer 3 launch; 311-4090B, Pioneer 4 launch; 313-74, Ranger 1; unnumbered Ranger 3; JB-4297c, Lab from the hillside in Spring 1961 with the Space Simulator under construction; unnumbered aerial view of Lab before Space Simulator.<sup>6</sup>

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<sup>6</sup>In part, the selection of prints in this set match a selection of prints in a retirement presentation set for Julian Nielsen who left JPL at about this same time (Accession 90-169, processed). The selection therefore may be the parts of a package prepared for retirees by the Public Information Office.

Fld 34:

1 print of JPL Negative 327-96C (5x7; sepia toned).

Shows hydrobomb carriage raised at the end of Channel, aft end, with no people, ca. 1945.

Fld 35:

14 prints (8x10; b&w) of 1941-46 JPL negatives

381-9, 5 men at Ercoupe wing; 381-33, Ercoupe and Porterfield; 381-124B, JATOs in lines; 383-92, A-20a under power; 293-72 and 207B, Private A launch; 327-57, -87 and -96D, Hydrobomb; 293-280 and 364 and 383-1162, WAC Corporal; 383-822A and 1082, Corporal motor test.

Fld 36:

25 prints (8x10; b&w) of various JPL negatives plus 2 loose "blue line" pages from F.C. Gunther and F. Krieth, "Photographic Study of Bubble Formation in Heat Transfer to Subcooled Water," March 9, 1950, JPL Progress Report 4-120, p. 12 and p. 17 [some of the prints may be from this report; some prints were used in F. C. Gunther, "Photographic Study of Surface-Boiling Heat Transfer to Water with Forced Convection," June 28, 1950, Progress Report 4-75], all originally in an envelope labeled "Pictures and Figures, Dunn's Paper."

Fld 37:

21 prints (8x10; b&w, 1 in color) of various JPL negatives, 1936-68 plus commemoration of 1936 test motor booklet (P 68-617, October, 1968) originally in an envelope marked by Powell as "Dedication Plaque Ceremony." The prints were probably assembled and presented as a package to those in attendance at the October 1968 ceremony.

Six 1968 images of 1936 documents, some numbered; P-9002B 1940s Project site, with a CIT private property sign in the Arroyo bed; a 1968 Malina color photo of Pierce, Terbeck, Powell and Meeks at the plaque dedication; 352-3961A Mariner 5; 211-2612B Surveyor 7; P-8510A Surveyor 7; P-5962 Surveyor 1; P-7875A Mariner 4; P-4565A Ranger 9; 293-3466 Explorer 1 lift off; 291-3851A Sergeant; 293-1345 Corporal firing, with motion picture cameraman in foreground; JB-15214B aerial view of JPL, October 1968.

While three other images taken in 1936 were given 1968 JPL Negative numbers (P-9006B, P-9007A, P-9008B), two other 1936 images in the Powell Papers are not from known JPL negatives. The photographer or source of any of the 1936 images is not mentioned.

Fld 38:

7 prints, 8x10: from JPL Negatives

332-8655A color 70 meter Deep Space Network Goldstone antenna; JB-13665B color aerial view of JPL; and P-5967 b&w Surveyor, with its shadow, on the Moon; P-8343B color 1967 low-angle aerial view of JPL; P-8510B b&w Surveyor 7 surface photo of Moon, January, 1968; P-10274 b&w Mariner 2 7 August 4, 1969 image of the whole of Mars; from an unidentified JPL negative: color Mariner 2 liftoff August 27, 1962.

## CATALOG DESCRIPTION

Powell, Walter, 1917-1994.

Papers, 1941-1981.

1 c.f. in 38 flds.

Includes items both created and collected by Powell during his career as an engineer at JPL. The created materials include copies of Powell's publications.

The collected materials include several significant documents, including the only extant paper copies of Conference Minutes for JPL-1, April 29, 1944 through November 5, 1945. The papers also contain a unique

pamphlet identifying JPL personnel in the 1943 JPL Negative M-21 as well as photographs of the 1936 Arroyo Seco rocket motor tests and versions of Frank Malina's memoirs.

Register available in the repository.

Tracings

Malina, Frank,

JPL - history

Accession Number 95-26R